



# CITY COUNCIL

## AGENDA REQUEST

<b>AGENDA OF:</b>	<b>02-04-14</b>	<b>AGENDA REQUEST NO:</b>	<b>III-D</b>
<b>INITIATED BY:</b>	<b>TIMOTHY JAHN P.E.</b> TWJ <b>SENIOR ENGINEER</b>	<b>RESPONSIBLE DEPARTMENT:</b>	<b>ENGINEERING</b>
<b>PRESENTED BY:</b>	<b>TIMOTHY JAHN P.E.</b> <b>SENIOR ENGINEER</b>	<b>DIRECTOR:</b>	<b>CHRISTOPHER STEUBING, P.E., CFM, CITY ENGINEER</b> CLS
		<b>ADDITIONAL DIRECTOR (S):</b>	<b>ROBERT VALENZUELA, P.E.</b> RV <b>DIRECTOR OF PUBLIC WORKS</b>
<b>SUBJECT / PROCEEDING:</b>	<b>DISSOLVED OXYGEN IMPROVEMENTS AT WWTPS – CIP WW1405 AUTHORIZE DESIGN SERVICES CONTRACT WITH AECOM</b>		
<b>EXHIBITS:</b>	<b>LOCATION MAP AECOM ENGINEER'S SIGNED CONTRACT AECOM ENGINEER'S PROPOSAL</b>		
<b>CLEARANCES</b>		<b>APPROVAL</b>	
<b>LEGAL:</b>	<b>MARY ANN POWELL,</b> <b>CITY ATTORNEY</b> MAP	<b>EXECUTIVE DIRECTOR:</b>	<b>N/A</b>
<b>PURCHASING:</b>	<b>TODD REED, CPPO, CPPB</b> <b>PURCHASING MANAGER</b> (P)	<b>ASSISTANT CITY MANAGER:</b>	<b>KAREN DALY</b> kd
<b>BUDGET:</b>	<b>BRYAN GUINN,</b> BG <b>BUDGET OFFICER</b>	<b>CITY MANAGER:</b>	<b>ALLEN BOGARD</b> Allen Bogard
<b>BUDGET</b>			
<b>EXPENDITURE REQUIRED: \$</b>		<b>96,000</b>	
<b>CURRENT BUDGET: \$</b>		<b>150,000</b>	
<b>ADDITIONAL FUNDING: \$</b>		<b>N/A</b>	
<b>RECOMMENDED ACTION</b>			
Authorize the execution of a design contract with AECOM for the Dissolved Oxygen Improvements at two Wastewater Treatment Plants, CIP WW1405, in the amount of \$96,000.			

## EXECUTIVE SUMMARY

The City's North and South Wastewater Treatment Plants (WWTPs) are conventional, biological treatment facilities that require dissolved oxygen (DO) to be delivered at various locations as part of the treatment process. The existing DO delivery system (at both WWTPs) is manually controlled and the blowers that delivery DO are aged and energy inefficient.

Upgrades to the blowers and the DO monitoring system are needed to replace the aging infrastructure and to reduce blower energy usage. In addition, improvements to the Supervisor Control And Data Acquisition (SCADA) system to monitor the DO delivery will be required. A Feasibility Report of improvements to the North and South WWTPs DO delivery system was completed in January 2014 by AECOM.

For the North WWTP, the following items will be addressed based on the January 2014 Report:

- Installation of one new multi-stage blower and a new coarse bubble diffuser system at the chlorine contact basin, including operational programming narrative and electrical/instrumentation hardware
- Removal and replacement of two dissolved oxygen sensors in the aeration basin, including operational programming narrative and electrical/instrumentation hardware
- Replacement of twelve (12) existing Programmable Logic Controller (PLCs) with new PLCs to improve SCADA system communications

For the South WWTP, the following item will be addressed based on the January 2014 Report:

- Automation of existing two-speed aerators to utilize DO sensors for start/stop and high/low speed, including operational programming narrative and electrical/instrumentation hardware

The design scope of services for AECOM will include the following:

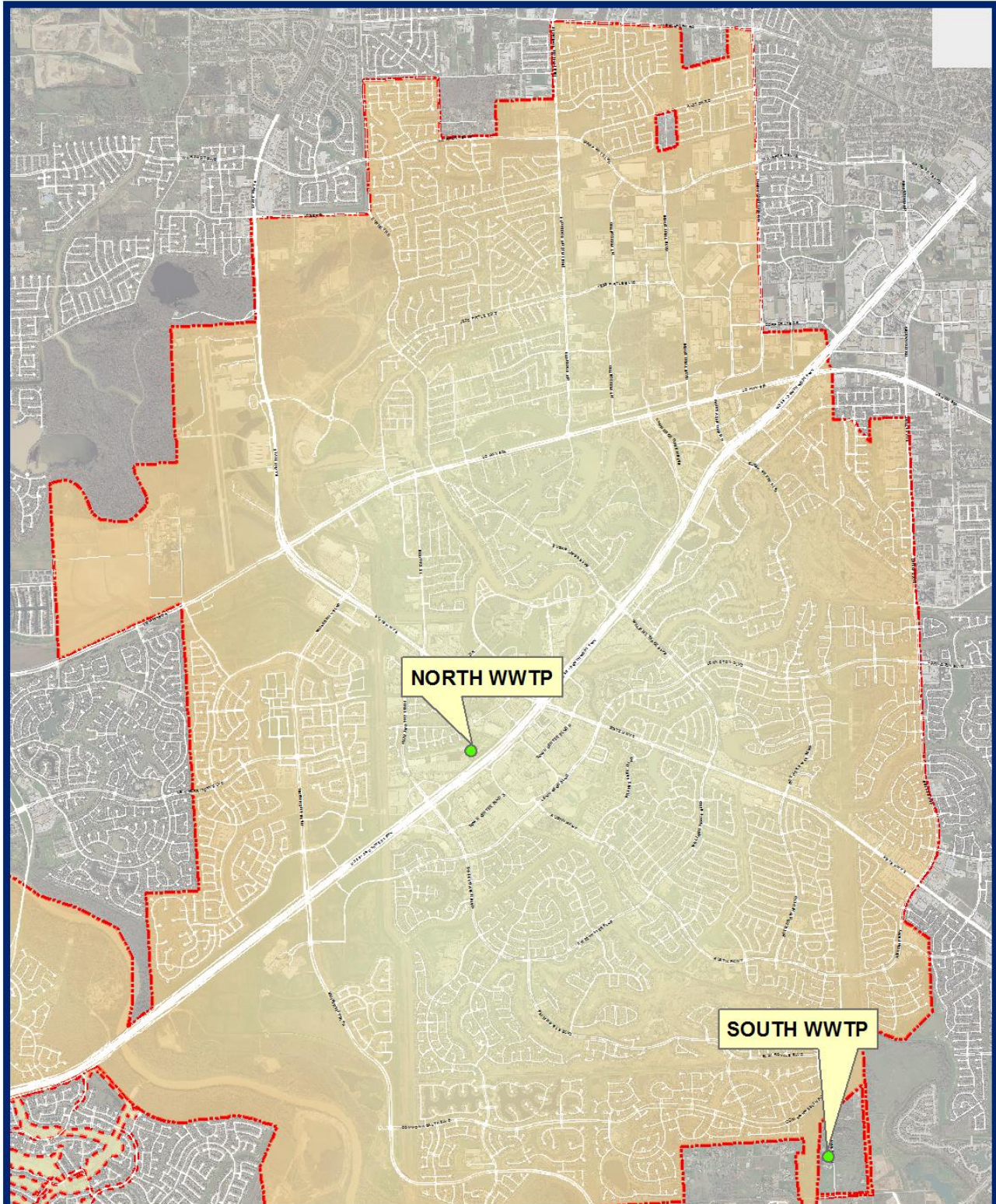
- Design Phase of all items listed above
  - Preparation of plans/specifications at 50%, 90%, final design submittals
  - Coordination with Texas Commission on Environmental Quality (TCEQ) for permitting
  - Preparation of Probable Construction Costs at each submittal stage
  - Attendance client coordination meetings
- Bidding Phase
  - Bidding Assistance and facilitation of bidding
  - Attend a pre-bid conference, respond to contractor questions, prepare addenda
  - Evaluate bids, check accounting errors, research contractor references
  - Preparation of Recommendation of Award Letter
  - Preparation of Conformed Contract Documents for contract execution

AECOM was selected based on interviews held in November 2013 with four firms selected from the City's library of pre-qualified firms and in accordance with the City policy PU-109, Procurement of Professional Services and Consulting. The design amount of \$96,000 was negotiated through a level of effort with AECOM. Funding for design for this project is available from CIP WW1405, with construction expected in FY15.

The Engineering and Public Works Departments recommend that the City Council authorize the execution of a design contract with AECOM for the Dissolved Oxygen Improvements at two WWTPs, CIP WW1405, in the amount of \$96,000.

## EXHIBITS





**CAPITAL IMPROVEMENT PROGRAM  
DISSOLVED OXYGEN DELIVERY TO WWTPs  
CIP NO. WW1405**



**CITY OF SUGAR LAND STANDARD CONTRACT  
FOR PROFESSIONAL ENGINEERING DESIGN  
SERVICES FOR CITY FACILITIES**  
Over \$50K

**I. General Information and Terms.**

Engineer's Name and Address: AECOM  
5444 Westheimer Road, Suite 200  
Houston, TX 77056

Project Description: Improvements to North and South Wastewater Treatment Plants

Maximum Contract Amount: \$96,000

Effective Date: On the latest date of the dates executed by both parties.

Termination Date: (See III F)

**II. Signatures.** By signing below, the City and the Engineer agree to the terms of this Contract.

**CITY OF SUGAR LAND**

**ENGINEER:**

\_\_\_\_\_  
City Manager or Assistant City Manager

By: 

Date: \_\_\_\_\_

Date: January 23, 2014

APPROVED AS TO FORM:







AECOM  
5444 Westheimer Rd  
Suite 200  
Houston, Texas 77056  
www.aecom.com

713 780 4100 tel  
713 780 0838 fax

January 13, 2014

Timothy W. Jahn, P.E.  
Senior Engineer  
City of Sugar Land  
2700 Town Center Blvd N  
Sugar Land, TX 77479

**Re:** North / South WWTP Final Design Proposal

Dear Mr. Jahn:

AECOM Technical Services, Inc. (AECOM) is pleased to submit this proposal to provide professional engineering services for the preparation of the plans and specifications for improvements to the North and South Wastewater Treatment Plants (WWTPs) for the City of Sugar Land (City). The following describes the scope of services to be performed, schedule of completion, and basis of compensation.

## **SCOPE OF SERVICES**

### **Task 1: Detailed Design**

AECOM will produce construction-ready plans and specifications for improvements to the City of Sugar Land North & South WWTPs. AECOM's scope of work for final design services include the following improvements:

- Automation of existing two-speed aerators at South WWTP to operate utilizing dissolved oxygen sensors for start/stop and/or high/low speed. Includes preparation of operational narrative and electrical and instrumentation hardware design.
- Installation of one new multistage blower and new coarse bubble diffuser system at the North WWTP chlorine contact basins. Includes preparation of operational narrative and electrical and instrumentation hardware design.
- Removal and replacement of two dissolved oxygen sensors in the aeration basins at the North WWTP. Includes preparation of operational narrative and electrical and instrumentation hardware design.
- AECOM will provide design for improvements to the North WWTP SCADA system. Improvements will include replacement of twelve (12) existing PLCs. Replace three (3) existing PLCs with three (3) new Allen Bradley 1769-Series CompactLogix PLCs and replace the remaining nine (9) PLCs with 1734-Series Point remote I/Os to communicate with the PLCs via Ethernet. The existing DH+ network will also be replaced with a new fiber optic Ethernet network. The existing Ethernet radios will continue to be utilized. The existing alarm management system will also be upgraded from a landline telephone auto-dialer to an internet based system using Win-911 software.

AECOM will produce plans and specifications for 50%, 90% and final design. AECOM will prepare the technical specifications. AECOM will also incorporate front-end documents into the project manual as provided by the City. AECOM will also prepare an engineer's opinion of probable construction cost at 50%, 90% and final design. AECOM will provide GIS information of the improvements using the City's GIS data-based system. AECOM will prepare a summary transmittal letter to the Texas Commission on Environmental Quality for permitting review and approval. AECOM has included time to attend up to four (4) client coordination meetings.



## **Task 2: Bid Phase Services**

AECOM will participate in bid phase services. AECOM will provide electronic copies to Contractors of documents during bidding phase utilizing CivCast. AECOM will facilitate the bidding process utilizing CivCast. AECOM will attend the pre-bid conference, respond to bidder questions and prepare addendums as needed. AECOM will also evaluate the bids, check for accounting errors, verify contractor references, and prepare a Recommendation of Award for the City. For this task, AECOM has assumed a traditional design-bid process. AECOM will provide six (6) hardcopy and one (1) electronic copy of conformed drawings in AutoCAD and PDF and conformed project manual in Word and PDF.

## **WORK NOT INCLUDED IN THIS PROPOSAL**

The following work items are not included in this proposal. Separate proposals will be submitted to perform the following tasks upon request.

- Field surveying at the North or South WWTP
- Field sampling or testing at the North or South WWTP
- Hydraulic analysis of the North or South WWTP
- Engineering services related to Construction Phase Services are not included in this scope of work.
- Geotechnical services for soil borings/logs for recommended improvements to WWTPs.
- Special meetings and/or public meetings as arranged by the City of Sugar Land to present the recommendations, including preparation and reproduction of special exhibits necessary for these presentations.
- Project advertisement in the local newspaper, website, etc.

## **SCHEDULE OF COMPLETION**

AECOM proposes to complete the preparation of the final design package within 6 months after receipt of the written Notice to Proceed. A draft schedule appears in Attachment A.

## **BASIS OF COMPENSATION**

The detailed budget breakdown for this proposal is provided in Attachment B. We are requesting total engineering fees on a lump sum basis in the amount of \$96,000.

If you have any questions or comments, please contact me at 713-267-2939 or Keith O'Connor at 713-267-3135.

Sincerely,

**AECOM**

Stephen Berckenhoff, P.E.  
Vice President

**AECOM**

Keith O'Connor, P.E.  
Project Manager

Attachment A – Proposed Project Schedule  
Attachment B – Proposed Labor Cost Budget

**ATTACHMENT B**

**PROJECT NAME:** City of Sugar Land North and South WWTP Improvements

**Job #:** 60289125

LABOR COST BUDGET ESTIMATE									LABOR BUDGET	OTHER	TOTAL COST
RAW LABOR RATES (\$/HR)									AT	DIRECT	BUDGET
	PROJ. DIR.	PROJ. MGR.	SR. ENG.	PROJ. ENG.	ASST. ENG.	LEAD TECH.	TECH. B.	CLER.	3.00	COST	
	\$82	\$58	\$66	\$45	\$33	\$46	\$35	\$30			
LABOR ESTIMATE											
Task	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.			
<b>1.0 DETAILED DESIGN</b>											
<b>1.1 Project Management</b>											
Project Kick-Off Meeting		2	2	2					\$1,014	\$25	\$1,039
Client Progress Review Meeting (4 meetings)		8	4	8					\$3,264	\$100	\$3,364
Invoice/Project Status Preparation		20						8	\$4,200		\$4,200
<b>1.2 Other Design Tasks</b>											
As-Builts/Record Drawings Review		2	4	6	10				\$2,940		\$2,940
Site Visits		2	2	2	2		2		\$1,422	\$50	\$1,472
Specifications Preparation & Review		4	20	8	12			8	\$7,644	\$50	\$7,694
Construction Cost Estimate Preparation		4	8	6	8		8	2	\$4,902		\$4,902
QA/QC	12								\$2,952		\$2,952
Permit Approvals/Signatures Preparation & Processing		4		4	8			4	\$2,388		\$2,388
Submit 50%, 90%, & Final Plans & Specifications		6		6					\$1,854	\$2,000	\$3,854
Review and Incorporate Submittal Review Comments		4		8	10	10			\$4,146		\$4,146
<b>1.3 Drawings</b>											
<b>General</b>											
Cover Sheet		1		1	2	4			\$1,059		\$1,059
Site Index and General Notes		1		1	2	4			\$1,059		\$1,059
Overall North WWTP Site Plan		2		4	8	10			\$3,060		\$3,060
Overall South WWTP Site Plan		2		4	8	10			\$3,060		\$3,060
<b>Mechanical</b>											
North WWTP Aeration Basin Plan		1		2	6	4			\$1,590		\$1,590
North WWTP Chlorine Contact Basin Plan		2		4	8	10			\$3,060		\$3,060
North WWTP Chlorine Contact Basin Sections		1		2	6	8			\$2,142		\$2,142
North WWTP Chlorine Contact Basin Sections & Details		1		2	6	8			\$2,142		\$2,142
South WWTP Aeration Basin Plan		2		4	8	10			\$3,060		\$3,060
South WWTP Aeration Basin Sections		1		2	6	8			\$2,142		\$2,142
Mechanical Details		1		2	4	4			\$1,392		\$1,392
<b>Electrical</b>											
North WWTP Electrical Site Plan Schematic Routing			8				12		\$2,844		\$2,844
South WWTP Electrical Site Plan Schematic Routing			8				12		\$2,844		\$2,844
Partial One Line Diagram No. 1			6				10		\$2,238		\$2,238
Partial One Line Diagram No. 2 SSWTP			6				10		\$2,238		\$2,238
Control System Block Diagram North and South			6				10		\$2,238		\$2,238
Panel Schedule North and South			6				10		\$2,238		\$2,238
Conduit Site Detail, DO Detail, 2-Speed Control Diagram			2				4		\$816		\$816
North Control System Block Diagram Expansion			8				20		\$3,684		\$3,684
North Control System DH Expansion			8				20		\$3,684		\$3,684
<b>2.0 BID PHASE SERVICES</b>											
Pre-Bid Meeting Attendance		4	4	4					\$2,028		\$2,028
Prepare Addenda	1	2	2	4	8	2	2	1	\$2,898		\$2,898
Electronic Bidding Effort								8	\$720	\$500	\$1,220
Respond to Bidder's Questions		2	1	2	2				\$1,014		\$1,014
Bid Tabulation/Evaluation		1		2					\$444		\$444
Recommendation of Award		1		1				1	\$399		\$399
Conformance Drawings		1		4				8	\$1,434	\$1,000	\$2,434
<b>TOTAL HOURS</b>	13	82	105	95	124	92	120	40			
<b>TOTAL LABOR COSTS</b>	\$1,066	\$4,756	\$6,930	\$4,275	\$4,092	\$4,232	\$4,200	\$1,200	\$92,253	\$3,725	\$95,978
<b>TOTAL BASIC COST BUDGET ESTIMATE</b>											\$96,000